Claims

1. A voltage-controlled oscillator circuit connected to supply and reference voltages for radio frequency operation, comprising:

at least one inductor;

at least one varactor connected in parallel with the at least one inductor;

a pair of p-channel MOS transistors connected across the at least one varactor, each p-channel transistor having source, drain, and gate terminals, wherein the drain terminal of the first of the pair of p-channel MOS transistors is connected to the gate terminal of the second of the pair of p-channel MOS transistors and the drain terminal of second of the pair of MOS transistors being connected to the gate terminal of the first of the pair of MOS transistors; and

biasing means for providing a biasing current to the voltage-controlled oscillator circuit, the biasing means configured according to one of a biasing n-channel MOS transistor connected to the supply voltage and a biasing p-channel MOS transistor connected to the reference voltage.

2. The voltage-controlled oscillator circuit of claim1, wherein when the biasing means is configured according to the biasing n-channel MOS transistor connected to the supply voltage, the biasing n-channel MOS transistor having source, drain, and gate terminals, the drain terminal of the biasing n-channel MOS transistor is connected to the supply voltage.

3. The voltage-controlled oscillator circuit of claim 2, wherein the gate terminal of the biasing n-channel MOS transistor is connected to a biasing voltage.

4. The voltage-controlled oscillator circuit of claim 3, wherein the source terminal of the biasing n-channel MOS transistor is connected to the source terminals of the pair of p-channel MOS transistors.

5. The voltage-controlled oscillator circuit of claim 4, wherein the at least one inductor is configured according to a pair of first and second inductors connected in series and the connection therebetween is connected to the reference voltage.

6. The voltage-controlled oscillator circuit of claim 1, wherein when the biasing means is configured according to the biasing p-channel MOS transistor connected to the reference voltage, the biasing p-channel MOS transistor having source, drain and gate terminals, the drain terminal of the biasing p-channel MOS transistor is connected to the reference voltage.

7. The voltage-controlled oscillator circuit of claim 6, wherein the gate and drain terminals of the biasing p-channel MOS transistor are connected.

8. The voltage-controlled oscillator circuit of claim 7, wherein the at least one inductor is configured according to a pair of first and second inductors connected in series.

9. The voltage-controlled oscillator circuit of claim 8, wherein the source terminal of the biasing p-channel MOS transistor is connected to the inter-connection between the pair of first and second inductors.

10. The voltage-controlled oscillator circuit of claim 9, wherein the source terminals of the pair of p-channel MOS transistors are connected to the supply voltage.

11. A voltage-controlled oscillator circuit connected to supply and reference voltages for radio frequency operation, comprising:

at least one inductor;

at least one varactor connected in parallel with the at least one inductor;

a pair of p-channel MOS transistors connected across the at least one varactor, each p-channel transistor having source, drain, and gate terminals, wherein the drain terminal of the first of the pair of p-channel MOS transistors is connected to the gate terminal of the second of the pair of p-channel MOS transistors and the drain terminal of second of the pair of MOS transistors being connected to the gate terminal of the first of the pair of MOS transistors; and

biasing means for providing a biasing current to the voltage-controlled oscillator circuit, the biasing means configured according to a biasing n-channel MOS transistor connected to the supply voltage and a biasing p-channel MOS transistor connected to the reference voltage.

12. The voltage-controlled oscillator circuit of claim11, the biasing n-channel MOS transistor having source, drain, and gate terminals, wherein the drain terminal of the biasing n-channel MOS transistor is connected to the supply voltage.

13. The voltage-controlled oscillator circuit of claim 12, wherein the gate terminal of the biasing n-channel MOS transistor is connected to a biasing voltage.

14. The voltage-controlled oscillator circuit of claim 13, wherein the source terminal of the biasing n-channel MOS transistor is connected to the source terminals of the pair of p-channel MOS transistors.

15. The voltage-controlled oscillator circuit of claim 11, the biasing p-channel MOS transistor having source, drain and gate terminals, wherein the drain terminal of the biasing p-channel MOS transistor is connected to the reference voltage.

16. The voltage-controlled oscillator circuit of claim 15, wherein the gate and drain terminals of the biasing p-channel MOS transistor are connected.

17. The voltage-controlled oscillator circuit of claim 16, wherein the at least one inductor is configured according to a pair of first and second inductors connected in series.

18. The voltage-controlled oscillator circuit of claim 17, wherein the source terminal of the biasing p-channel MOS transistor is connected to the inter-connection between the pair of first and second inductors.

19. A method for configuring a voltage-controlled oscillator circuit connected to supply and reference voltages for radio frequency operation, the method comprising the steps of:

providing at least one inductor;

connecting at least one varactor in parallel with the at least one inductor;

connecting a pair of p-channel MOS transistors across the at least one varactor, each p-channel transistor having source, drain, and gate terminals, wherein the drain terminal of the first of the pair of p-channel MOS transistors is connected to the gate terminal of the second of the pair of p-channel MOS transistors and the drain terminal of second of the pair of p-channel MOS transistors being connected to the gate terminal of the first of the pair of p-channel MOS transistors; and

providing biasing means for providing a biasing current to the voltage-controlled oscillator circuit, the biasing means configured according to a biasing n-channel MOS transistor connected to the supply voltage and a biasing p-channel MOS transistor connected to the reference voltage.

20. The method as in claim 19, the biasing p-channel transistor having source, drain and gate terminals and the drain terminal of the biasing p-channel MOS transistor is connected to the reference voltage, further comprising the step of connecting the gate and drain terminals of the biasing p-channel MOS transistor.